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(54) MANUFACTURE OF SEMICONDUCTOR DEVICE filled with the SiO<sub>2</sub> film 10.

(57) Abstract:

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PURPOSE: To manufacture a semiconductor device excellent in closely filled up reliability and capable of high integration when the second insulating films are formed by a method wherein the first insulating films are processed so that the normals on the surface of the first insulating film at slopes may make specific angles with the normals of the main surface of a substrate.

CONSTITUTION: A substrate is arranged in a dryetching device, where mixed gas of CH<sub>4</sub> and Ar is introduced to etch away SiO<sub>2</sub> films 6 by plasma for forming SiO<sub>2</sub> films 8. At this time, the SiO<sub>2</sub> films 6 can be anisotropically etched away by CF<sub>4</sub> gas while etching the SiO<sub>2</sub> films 6 by Ar gas making an angle of 45° so that the SiO<sub>2</sub> films 8 in the gaps between Al wirings 4A-4C may be etched away making an angle of 60°-85° down to the gap bottoms. Later, the other SiO<sub>2</sub> film 10 as the second insulating film is deposited. At this time, the SiO<sub>2</sub> films 8 are provided with no sides making angles perpendicular to or exceeding the same with the main surface of the substrate so that the gaps of Al wirings 4 (4A-4C) having the aspect ratio exceeding one may be closely

